Split.

Work Order ID 50004-B. -2

July 2, 2009 3:37:49 PM

Item ID: D3011-1
Revision ID: A
Item Name: Rappel
Start Date: 07/06/2009 **Start Qty:** 10.00
Required Date: 07/15/2009 **Req'd Qty:** 10.00
Reference:

~~4.00~~ (7)

Accept **Setup Start** **Stop**

Cust Item ID:
Customer:

Run Start **Stop**

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:** **QC:** **Date:** **SPC (Y/N):** **Date:**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D3011	Rev A

100 — 0.00

BAND SAW — 0.00

Bandsaw

Jeaspa Bandsaw

Memo

Cut Blanks: 26.57"

SF 09/07/17 (7)

110 — 0.00

HAAS CNC VERTICAL MACHINING #1 — 0.00

HAAS 1

HAAS CNC vertical machine #1

Memo

Ensure Batch Number programmed matches this W/O

Machine as per folio FA129

AR/SF 09/07/17 (5)

120 — QC2- Inspect parts off machine FAI/FAIB — 0.00

QC — 0.00

Quality Control

Memo

AR/SF 09/07/17 (5)

Dart Aerospace Ltd

W/O: 50004		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3011-1 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR: 50004-2		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09.07.20	120	5 PARTS OUT OF TOLERANCE WORST CASE: 1.195 INSTEAD OF 1.250 2.114 INSTEAD OF 2.125	[signature]	ANALYSIS RE-RAN WITH OUT OF TOLERANCE DIMENSIONS. SEE ATTACHED. MARGINS STILL POSITIVE ∴ PARTS ARE OK	[signature] 09.07.20	09/07/20	[signature] 09.07.20.	09/07/20
09/07/20	120	2 parts move inside the jaw. Parts were not tight enough in the vise. RC: operator error.	[signature] 09/07/2	Scrap and destroy. no replace	[signature] 09/07/20	[signature] 09/07/20	[signature] 09/07/2.	[signature] 09/07/20

NOTE: Date & initial all entries

Work Order ID 50004

July 2, 2009 3:37:49 PM

Item ID: D3011-1
Revision ID: A
Item Name: Rappel
Start Date: 07/06/2009 **Start Qty:** 10.00
Required Date: 07/15/2009 **Req'd Qty:** 10.00
Reference:

Accept **Setup Start** **Stop**

Cust Item ID:
Customer:

Run Start **Stop**

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:**
QC: **Date:** **SPC (Y/N):** **Date:**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC8- Inspect parts - second check	0.00							
QC Quality Control	**Memo**	0.00							
140	Chemical Conversion Coat per QSI005 4.1	0.00							
HandFinish Hand Finishing	**Memo**	0.00							
150	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
Powdercoat Powder Coating	**Memo** START TIME: OVEN TEMPERATURE: FINISH TIME:	0.00							

09-07-20 (5)

MM 09/07/20 (X5)

M 112148.

START TIME: 9:26
OVEN TEMPERATURE: 320°.
FINISH TIME: 9:50

09-07-21 (5).

Work Order ID 50004

July 2, 2009 3:37:49 PM

Item ID: D3011-1
Revision ID: A
Item Name: Rappel

Start Date: 07/06/2009 **Start Qty:** 10.00
Required Date: 07/15/2009 **Req'd Qty:** 10.00
Reference:

Accept **Setup Start** **Stop**

Cust Item ID:
Customer:

Run Start **Stop**

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC3- Inspect Part Finish	0.00				5	0		
QC	**Memo**	0.00							
Quality Control									
170	Identify as per dwg & Stock Location: GA	0.00				5	0		
Packaging	**Memo**	0.00							
Packaging									
180	QC21- Final Inspection - Work Order Release	0.00							
QC	**Memo**	0.00							
Quality Control									

SB 09/07/22

SB 09/07/22

09/07/22 HJ

09.07.22

Picklist Print

July 2, 2009 3:37:48 PM

Work Order ID: 50004

Parent Item: D3011-1RevA

Parent Item Name: Rappel

Comments:

Start Date: 07/06/2009 **Required Date:** 07/15/2009

Start Qty: 10.00 **Required Qty:** 10.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6202RevA		Manufactured	No			110	f	36.1000	10.0000			

I-Beam Extrusion

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
MAT	36.1	
~~14742~~	6.1	
37669	30	

50040

09/07/17

DART AEROSPACE LTD	Work Order:	50004
Description: Rappel Slide Bar	Part Number:	D3011-1
Inspection Dwg: D3011-1 **Rev:** A		Page 1 of 1

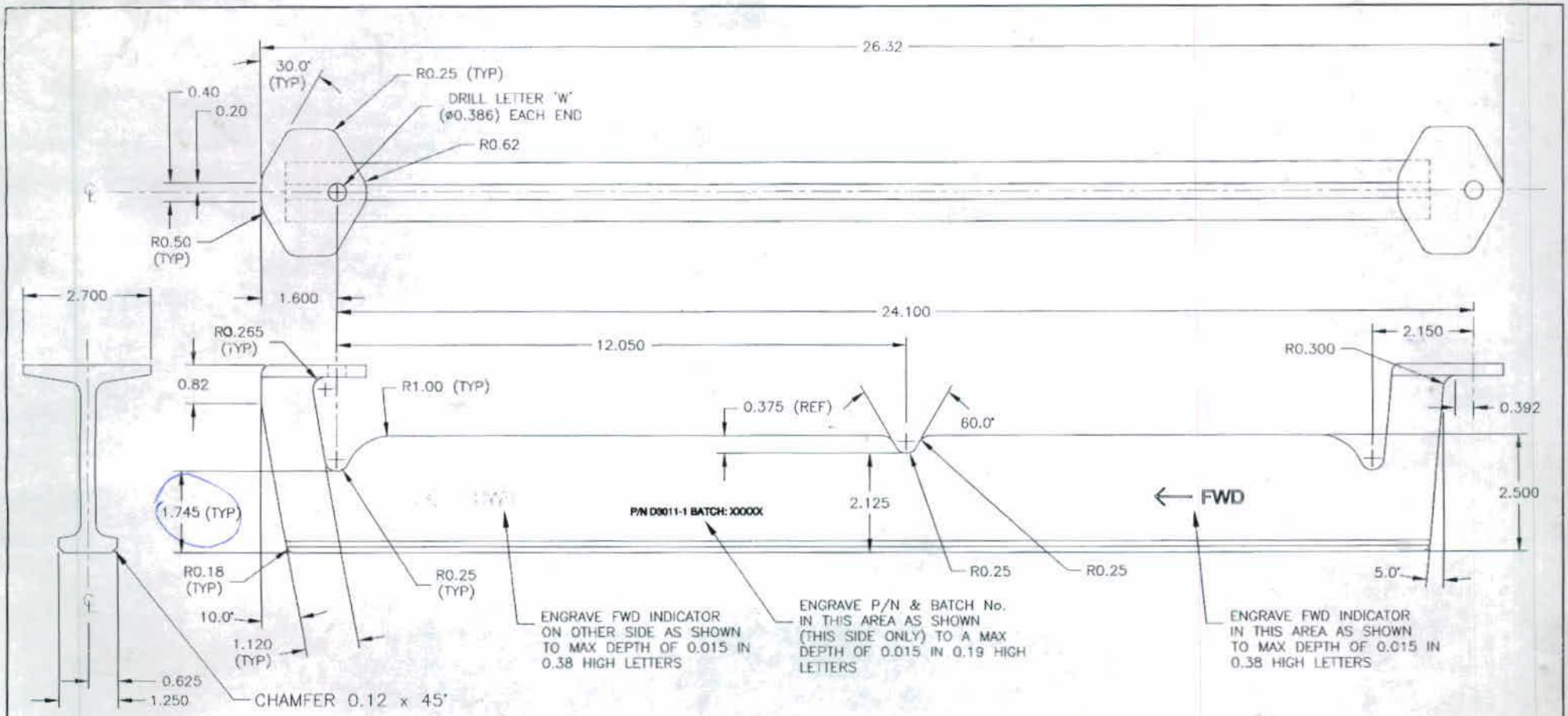
FIRST ARTICLE INSPECTION CHECKLIST

[X] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.700	+/-0.010	2.700	—			
1.250	+/-0.010	1.254	/			
0.625	+/-0.010	.625	V			
0.120 x 45°	+/-0.010 x +/-0.5°	.120x45°	✓			
Ø0.386	+0.005/-0.001	Ø.388	—			
1.600	+/-0.010	1.600	—			
26.32	+/-0.030	26.32	—			
R0.50	+/-0.030	R.500	—			
30°	+/-0.5°	30°	—			
0. 275	+/-0.010					
2.500	+/-0.010	2.494	—			
5°	+/-0.5°	5°	V			
24.100	+/-0.010	24.100	—			
1.125	+/-0.010					
R0.25	+/-0.030	R.250	—			
0.375	+/-0.010	.376	—			
1.120	+/-0.010	1.123	—			
1.745	+/-0.010	1.744	—			
0.82	+/-0.030	.810	—			
10°	+/-0.5°	10°	✓			

Measured by:		Audited by:		Prototype Approval:	N/A
Date:	09/07/19	Date:	09.07.20	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	09.05.04	New Issue	KJ/DD	



RELEASED
01.04.08

#5004.
MF
09-07-02

D3011-1
MANUFACTURE FROM D6202-027 EXTRUSION
BREAK ALL SHARP EDGES 0.010-0.020
FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
ALL DIMENSIONS ARE IN INCHES

A	01.03.29	NEW ISSUE

DESIGN	DRAWN BY	DART AEROSPACE LTD.	
CHECKED	APPROVED	DRAWING NO. D3011	REV. A
DATE 01.03.29		TITLE RAPPEL SLIDE BAR	SHEET 1 OF 1 SCALE 1:2

KEEP WITH W/O # 50004

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. SUB2-D205-523	REV. A SHEET 1 OF 3
DATE 01.03.30		TITLE SUBSTANTIATION REPORT	SCALE NTS

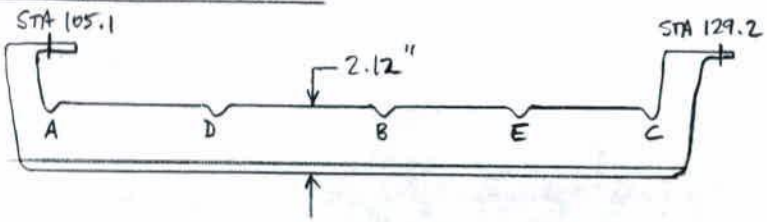
1.0 INTRODUCTION:

THE PURPOSE OF THIS REPORT IS TO SUBSTANTIATE THE D205-523-013 RAPPEL INSTALLATION BASED ON THE EXISTING/APPROVED D205-523-011 RAPPEL INSTALLATION

2.0 GEOMETRY & LOADS:

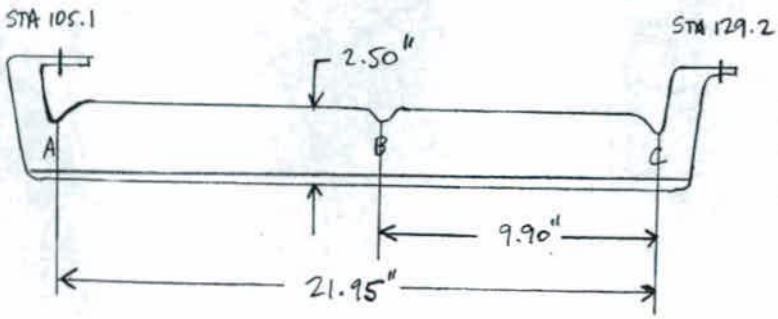
THE DIFFERENCE BETWEEN THE D205-523-011 INSTALLATION & THE D205-523-013 INSTALLATION IS THE SLIDE BAR AND THE ALLOWABLE LOADING ON THE SLIDE BAR

D205-523-011 (USES D1005 SLIDE BAR)



UP TO 300 LB WORKING LOAD ALLOWED AT POINT A/B/C/D/E

D205-523-013 (USES D3011-1 SLIDE BAR)



ALLOWED 500 LB WORKING LOAD AT POINT B OR 300 LB WORKING LOAD AT POINTS A & C

3.0 ROOF ANALYSIS

CONSIDER THE FOLLOWING LOADING SCENARIOS ON THE D205-523-013 INSTALLATION:

#	SCENARIO	LOAD @ STA 105.1	LOAD @ STA 129.2	RESULT
1	300 LB @ A ONLY	300 LB	Ø	OK PER D205-523-011
2	300 LB @ C ONLY	17 LB	273 LB	OK PER D205-523-011
3	300 LB @ A 300 LB @ C	317 LB	273 LB	STA 129.2 OK PER -011 STA 105.1 → SEE PAGE 2
4	500 LB @ B ONLY	250 LB	250 LB	OK PER D205-523-011

FROM PAGE 18 OF SR205-523, THE ROOF HARDPOINT @ STA 105.1 IS RATED FOR 1500 LB ULTIMATE LOAD.

$\therefore P = (317\ LB)(2.5)(1.5) = 1189\ LB$

$MS = \frac{1500\ LB}{1189\ LB} - 1 = \underline{\underline{0.26}} \longleftarrow OK$

4.0 D2224 ANCHOR ANALYSIS

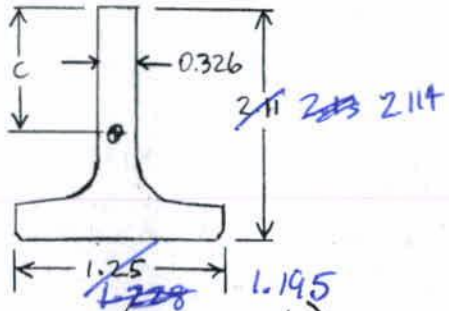
PER SUB1-D205-523 REV. A, THE D2224 ANCHOR WAS SUBSTANTIATED FOR A FACTORED LOAD OF 1294 LB FOR THE D205-523-011 INSTALLATION. IN THE CASE OF THE D205-523-013 INSTALLATION, THE ANCHOR MUST BE SUBSTANTIATED FOR $F = (600\ LB)(2.5)(1.5) = 2250\ LB$. IF $F = 2250\ LB$, THE MARGINS IN SUB1-D205-523 GET RE-CALCULATED AS FOLLOWS:

MS1 = 0.11
MS2 = 20.4
MS3 = 3.7
MS4 = 3.5

} ALL POSITIVE, ALL OK

5.0 D3011-1 SLIDE BAR ANALYSIS

IN COMPARISON TO THE D1005 SLIDE BAR, THE D3011-1 SLIDE BAR HAS AN INCREASED SECTION TO HANDLE A 500LB WORKING LOAD AT POINT B.



$F_{tu} = 38\ ksi$ (QQ-A-200/8)

1.314"
$c = 1.33"$
$I = 0.42\ in^4$ } FROM AUTOCAD

$P = (500\ lb)(2.5)(1.5) = 1875\ lb$

$M = \frac{PL}{4} = \frac{(1875\ lb)(24.10")}{4} = 11297\ lb \cdot in$

$\sigma_{cr} = \frac{Mc}{I} = \frac{(11297\ lb \cdot in)(1.33")}{0.42\ in^4} = 35.8\ ksi$ 35.8 ksi (35.769)

$MS = \frac{F_{tu}}{\sigma_{cr}} - 1 = \frac{38\ ksi}{35.8\ ksi} - 1 = \underline{\underline{0.06}} \longleftarrow OK$ 0.062

6.0 CONCLUSION

THE D205-523-013 RAPPEL INSTALLATION MEETS THE NECESSARY STRENGTH REQUIREMENTS.